

## ON THE REINFORCING EFFECTS OF THE CONTENT OF VERBAL ATTENTION

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During a functional analysis, a boy with autism and oppositional defiant disorder displayed destructive behavior that was maintained by attention in the form of verbal reprimands (e.g., "Don't hit me"). In a second analysis, contingent verbal reprimands produced higher rates of the behavior than contingent statements that were unrelated to the target response (e.g., "It is sunny today"), suggesting that some forms of attention were more reinforcing than others. A treatment based on these analyses reduced the behavior to near-zero levels.

**DESCRIPTORS:** functional analysis, behavioral assessment, developmental disabilities, verbal behavior

Treatments for destructive behavior are often more effective when they are based on the results of a functional analysis because the contingencies that maintain the response are more likely to be identified and eliminated (Iwata, Pace, Cowdery, & Miltenberger, 1994). In addition, treatment effects may occur more rapidly and extinction bursts may be attenuated through noncontingent presentation of the stimuli that are responsible for behavioral maintenance (Hagopian, Fisher, & Legacy, 1994; Vollmer, Iwata, Zarcone, Smith, & Mazaleski, 1993).

Functional analyses generally have been used to separate destructive responses into broad, functional classes (e.g., escape maintained, attention maintained). However, it is unlikely that a given client's destructive behavior is maintained by all forms of attention or by escape from all types of activities. For example, some children with autism dis-

play aberrant behavior consistent with task avoidance, whereas others exhibit behavior consistent with social avoidance (Taylor, Ekdahl, Romanczyk, & Miller, 1994). Altering the aversive properties of tasks might be an appropriate treatment for the former group, whereas manipulating aspects of the social situation would be more appropriate for the latter group. In the current investigation, we attempted to extend the literature on functional analysis by delineating the specific form of attention that was responsible for behavioral maintenance with a boy with autism and oppositional defiant disorder who displayed attention-maintained destructive behavior.

### METHOD

Mat, a 4-year-old boy with autism, oppositional defiant disorder, and moderate mental retardation, was hospitalized for the treatment of destructive behavior (hitting, kicking, scratching, biting, pushing, pinching, or throwing objects at others; banging, throwing, overturning, tearing, or kicking objects). All sessions lasted 10 min and were conducted in a room (3 m by 3 m) with a one-way mirror, behind which trained ob-

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This investigation was supported in part by Grant MCJ249149-02 from the Maternal and Child Health Service of the U.S. Department of Health and Human Services.

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servers recorded behaviors on laptop computers. Interobserver agreement was assessed during 48% of sessions. Exact agreement coefficients averaged 90%.

A functional analysis was conducted using the methods described by Iwata *et al.* (1994). Next, two attention conditions were conducted using a multielement design to determine whether the content of verbal attention was important to its reinforcing effects on destructive behavior. During the verbal reprimands condition, Mat was given free access to toys while the therapist sat in a chair and read a magazine. Contingent upon each occurrence of destructive behavior, the therapist remained in the chair and presented brief verbal attention that referred to the target response ("Don't hit me") or its effect ("That hurts"). The unrelated verbal statements condition was similar to the verbal reprimands condition except that the verbal statements presented contingent upon destructive behavior did not refer to the behavior or its effects ("It's sunny today"). A different therapist was paired with each condition. Therefore, to control for therapist effects (e.g., differences in voice intonation, facial expression, etc.), the therapists were reversed (i.e., each therapist was paired with the opposite condition) beginning with Session 14.

A treatment was developed based on the results of the two previous analyses, and the treatment was evaluated using an ABAB design. The baseline was identical to the verbal reprimands condition. During noncontingent reinforcement (NCR), the therapist provided 30 s of attention (interactive play) on a fixed-time (FT) 40-s schedule, and destructive behavior no longer produced attention (i.e., was placed on extinction). The therapist specifically avoided statements that referred to Mat's behavior (either maladaptive or appropriate). Beginning with Session 25, the density of the NCR schedule was faded to an FT 5-min schedule using the

procedures described by Hagopian *et al.* (1994).

## RESULTS AND DISCUSSION

The top panel of Figure 1 shows the functional analysis results, which indicated that Mat's destructive behavior was sensitive to attention (i.e., verbal reprimands) as a reinforcer ( $M = 13.9$  in social attention, 7.6 in tangible, 0.3 in demand, and 1.2 in toy play). The center panel shows the results of the analysis comparing verbal reprimands and unrelated verbal statements. Although both conditions produced higher levels of aberrant behavior than the control condition of the functional analysis (i.e., toy play), the rates were much higher in the verbal reprimand condition ( $M = 19.7$  and 13.7, respectively) than in the unrelated verbal statements condition ( $M = 5.5$  and 3.5, respectively). These results suggest that verbal statements that were related to the destructive behavior (i.e., reprimands) were higher quality reinforcers for Mat's destructive behavior than were statements that were unrelated to his behavior. An alternative explanation is that the differences in response rates under the two conditions were partially (or primarily) a function of the discriminative properties of the verbal reprimands; that is, the reprimands may have provided Mat with information regarding the contingencies in effect. However, if this were the case, then the rates of destructive behavior in the two conditions should have become more similar over time, as Mat learned that destructive behavior produced equal amounts of attention in each condition.

Future investigators may wish to use this methodology to examine the reinforcing effects of other components of attention such as voice intonation, facial expression, body posturing, and so forth. One limitation of this analysis is that integrity data were not collected on the independent variable, and

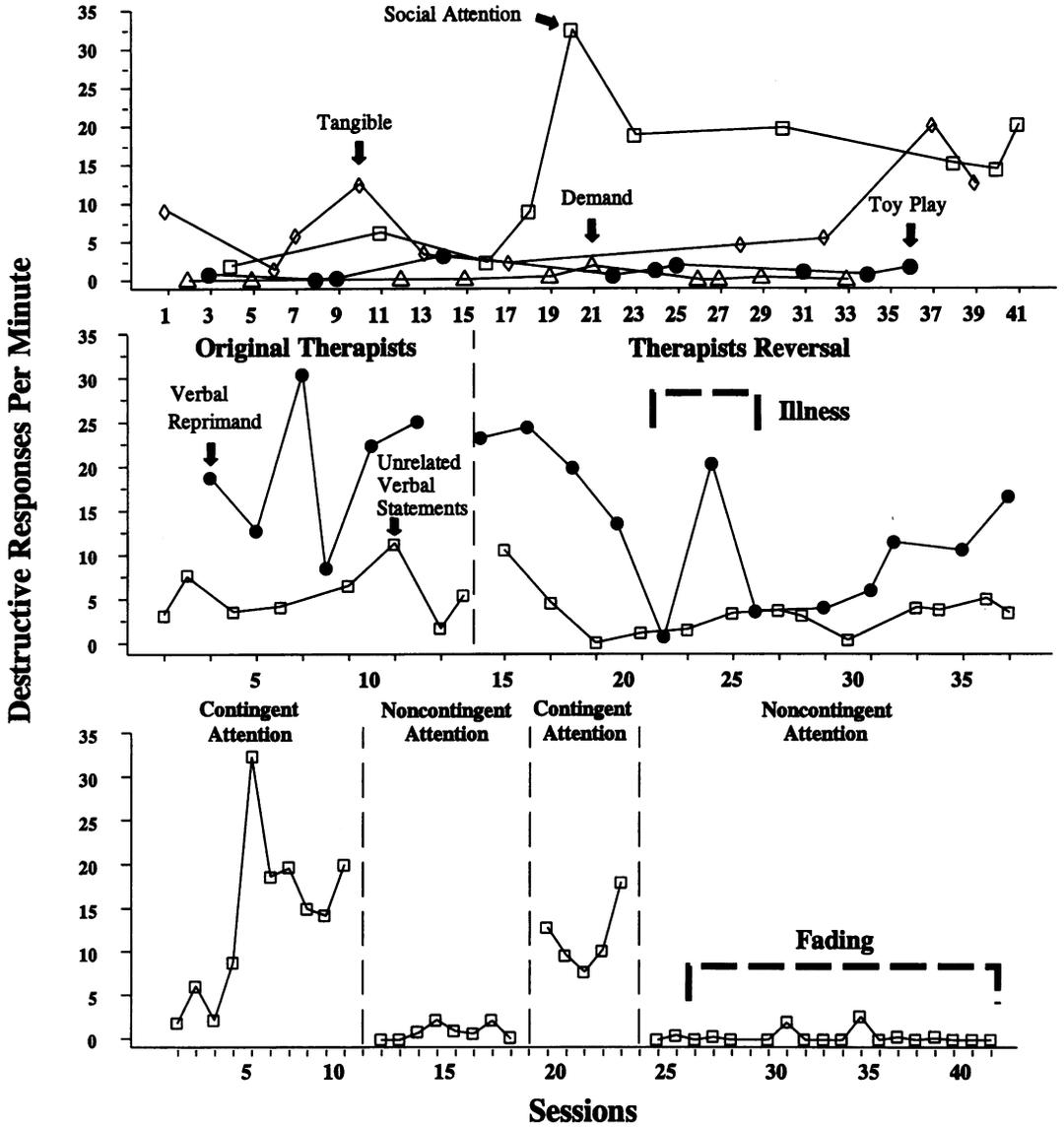


Figure 1. The rates of destructive behavior during functional analysis (top panel), during an analysis comparing the reinforcing effects of verbal reprimands and unrelated verbal statements (middle panel), and during baseline (contingent attention) and NCR (noncontingent attention) (bottom panel).

it is possible that the two conditions differed on some of these other components of attention (e.g., voice intonation for the two therapists may have differed). But if other dimensions of attention were responsible for the differences in response rates, then one would expect the differences between conditions to be less evident when the therapists

were reversed, which was not the case (i.e., the mean rate of aberrant behavior was 3.5 times higher during the verbal reprimand condition than during the unrelated verbal statements condition in the first phase and 3.9 times higher during the second phase).

The bottom panel of Figure 1 shows the effects of NCR in comparison with baseline.

During the two baseline phases, destructive behavior averaged 13.9 and 11.7 responses per minute. During the two NCR phases, destructive behavior averaged 0.9 and 0.3 responses per minute. Thus, as in previous investigations (Hagopian *et al.*, 1994; Vollmer *et al.*, 1993), NCR produced rapid reductions in destructive behavior without the occurrence of an extinction burst. It is noteworthy that although verbal reprimands were responsible for behavioral maintenance, a different form of attention (interactive play) was delivered during NCR (obviously, one would not deliver reprimands noncontingently). Thus, it is possible that (a) extinction was primarily responsible for the treatment effects, or (b) interactive play was an effective substitute reinforcer for verbal reprimands, whereas unrelated verbal statements were not.

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*Received May 26, 1995*

*Final acceptance December 1, 1995*

*Action Editor, F. Charles Mace*